



Early childhood caries (ECC) is the presence of 1 or more decayed (noncavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger. In children younger than 3 years of age, any sign of smooth-surface caries is indicative of severe early childhood caries (S-ECC). From ages 3 through 5, 1 or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth, or a decayed, missing, or filled score of >4 (age 3), >5 (age 4), or >6 (age 5) surfaces constitutes S-ECC.

The caries process involves a combination of factors including diet, a susceptible host, and microflora that interplay with a variety of social, cultural, and behavioral factors. Most young children appear to acquire some cariogenic microbes [e.g., mutans Streptococci (MS)] from their mothers or primary caregivers. Traditionally, multifactorial caries-risk studies have focused on evaluation of biological, demographic, and dietary factors and have used cavitation of a carious lesion (prevalence or incidence) as the outcome variable. Caries risk assessment is the determination of the

likelihood of the incidence of caries (i.e., the number of new cavitated or incipient lesions) during a certain time period. It also involves the likelihood that there will be a change in the size or activity of lesions already present. With the ability to detect caries in its earliest stages (i.e., white spot lesions), health care providers can help prevent cavitation.

The earlier in infancy that high levels of MS colonization occur, the more severe the caries in the primary dentition. Early childhood caries is an infectious process that too frequently requires expensive and extensive intervention. Identifying factors that determine those individuals at highest risk - either prior to or very shortly after teeth begin to erupt - is imperative to allow for possible preventive intervention.

Each child's ultimate risk classification is determined by the highest risk category where a risk indicator exists. The presence of a single risk indicator in any area of the high-risk category is sufficient to classify a child as being at high risk; the presence of at least one moderate-risk indicator and no high-risk indicators results in a moderate-risk

classification; and a child designated as low risk would have no moderate-risk or high-risk indicators.

CAT provides a means of classifying caries risk at a point in time and, therefore, should be applied periodically to assess changes in an individual's risk status. CAT can be used by both dental and non-dental personnel. It does not render a diagnosis. However, individuals using CAT must be familiar with the clinical presentation of dental caries and factors related to caries initiation and progression. Dentists should use advanced technologies such as radiographic assessment and microbiologic testing with CAT when assessing an individual's caries risk.

Non-dental health care providers should refer all children, especially those at moderate or high risk, to a dentist for oral health care. This helps establish the Dental Home, which is the ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way. Establishment of a Dental Home begins no later than 12 months of age and includes referral to dental specialists when appropriate.

American Academy of Pediatric Dentistry Caries-risk Assessment Tool (CAT)

| RISK FACTORS TO CONSIDER (For each item below, circle the most accurate response found to the right under "Risk Indicators") | RISK INDICATORS | | |
|--|---|--|---|
| | High | Moderate | Low |
| Part 1 - History (determined by interviewing the parent/primary caregiver) | | | |
| Child has special health care needs, especially any that impact motor coordination or cooperation ^A | Yes | | No |
| Child has condition that impairs saliva (dry mouth) ^B | Yes | | No |
| Child's use of dental home (frequency of routine dental visits) | None | Irregular | Regular |
| Child has decay | Yes | | No |
| Time lapsed since child's last cavity | <12 months | 12 to 24 months | >24 months |
| Child wears braces or orthodontic/oral appliances ^C | Yes | | No |
| Child's parent and/or sibling(s) have decay | Yes | | No |
| Socioeconomic status of child's parent ^D | Low | Mid-level | High |
| Daily between-meal exposures to sugars/cavity-producing foods (includes on demand use of bottle/sippy cup containing liquid other than water; consumption of juice, carbonated beverages, or sports drinks; use of sweetened medications) ^E | >3 | 1 to 2 | Mealtime only |
| Child's exposure to fluoride ^{F,G} | Does not use fluoridated toothpaste; drinking water is not fluoridated and is not taking fluoride supplements | Uses fluoridated toothpaste; usually does not drink fluoridated water and does not take fluoride supplements | Uses fluoridated toothpaste; drinks fluoridated water or takes fluoride supplements |
| Times per day that child's teeth/gums are brushed | <1 | 1 | 2-3 |
| Part 2 - Clinical evaluation (determined by examining the child's mouth) | | | |
| Visible plaque (white, sticky buildup) | Present | | Absent |
| Gingivitis (red, puffy gums) ^H | Present | | Absent |
| Areas of enamel demineralization (chalky white-spots on teeth) | More than 1 | 1 | None |
| Enamel defects, deep pits/fissures ^I | Present | | Absent |
| Part 3- Supplemental professional assessment (Optional)^J | | | |
| Radiographic enamel caries | Present | | Absent |
| Levels of mutans streptococci or lactobacilli | High | Moderate | Low |
| <i>Each child's overall assessed risk for developing decay is based on the highest level of risk indicator circled above (ie, a single risk indicator in any area of the "high risk" category classifies a child as being "high risk").</i> | | | |

A. Children with special health care needs are those who have a physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services. The condition may be developmental or acquired and may cause limitations in performing daily self-maintenance activities or substantial limitations in a major life activity. Health care for special needs patients is beyond that considered routine and requires specialized knowledge, increased awareness and attention, and accommodation.

B. Alteration in salivary flow can be the result of congenital or acquired conditions, surgery, radiation, medication, or age-related changes in salivary function. Any condition, treatment, or process known or reported to alter saliva flow should be considered an indication of risk unless proven otherwise.

C. Orthodontic appliances include both fixed and removable appliances, space maintainers, and other devices that remain in the mouth continuously or for prolonged time intervals and which may trap food and plaque, prevent oral hygiene, compromise access of tooth surfaces to fluoride, or otherwise create an environment supporting caries initiation.

D. National surveys have demonstrated that children in low-income and moderate-income households are more likely to have caries and more decayed or filled primary teeth than children from more affluent households. Also, within income levels, minority children are more likely to have caries. Thus, socioeconomic status should be viewed as an initial indicator of risk that may be offset by the absence of other risk indicators.

E. Examples of sources of simple sugars include carbonated beverages, cookies, cake, candy, cereal, potato chips, French fries, corn chips, pretzels, breads, juices, and fruits. Clinicians using caries-risk assessment should investigate individual exposures to sugars known to be involved in caries initiation.

F. Optimal systemic and topical fluoride exposure is based on use of a fluoride dentifrice and American Dental Association/American Academy of Pediatrics guidelines for exposure from fluoride drinking water and or supplementation.

G. Unsupervised use of toothpaste and at-home topical fluoride products are not recommended for children unable to expectorate predictably.

H. Although microbial organisms responsible for gingivitis may be different than those primarily implicated in caries, the presence of gingivitis is an indicator of poor or infrequent oral hygiene practices and has been associated with caries progression.

I. Tooth anatomy and hypoplastic defects (e.g., poorly formed enamel, developmental pits) may predispose a child to develop caries.

J. Advanced technologies such as radiographic assessment and microbiologic testing are not essential for using this tool.